
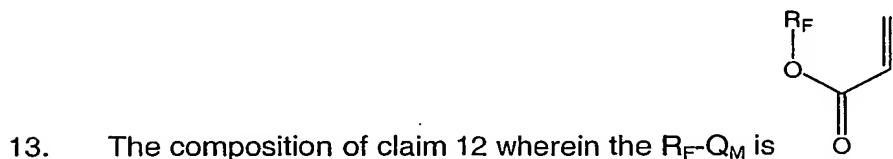


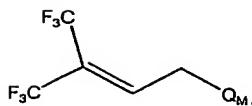
CLAIMS

What is claimed is:

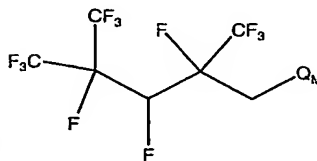
1. A composition comprising an R_F -monomer, wherein R_F comprises at least two $-CF_3$ groups and at least two hydrogens.
- 5 2. The composition of claim 1 wherein R_F comprises at least one $-CH_2-$ group.
3. The composition of claim 1 wherein R_F comprises at least one cyclic group.
4. The composition of claim 1 wherein R_F comprises at least one aromatic group.
- 10 5. The composition of claim 1 wherein R_F comprises at least one $(CF_3)_2CF-$ group.
6. The composition of claim 1 wherein R_F comprises at least three $-CF_3$ groups.
7. The composition of claim 1 wherein R_F comprises at least two $(CF_3)_2CF-$ groups.
- 15 8. The composition of claim 1 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.
9. The composition of claim 1 wherein the R_F -monomer comprises R_F-Q_M , wherein the Q_M portion comprises a group configured to react with another monomer to form at least a portion of an oligomer.
- 20 10. The composition of claim 9 wherein the Q_M portion comprises an olefin.
11. The composition of claim 10 wherein the R_F-Q_M is R_F .
12. The composition of claim 9 wherein the Q_M portion comprises an acrylate.



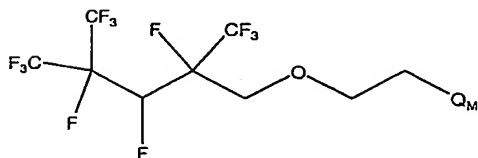
15. The composition of claim 9 wherein the R_F-Q_M is



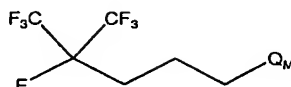
16. The composition of claim 9 wherein the R_F-Q_M is



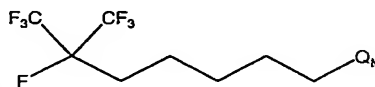
17. The composition of claim 9 wherein the R_F-Q_M is



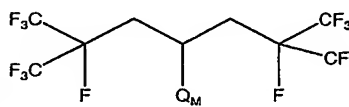
- 5 18. The composition of claim 9 wherein the R_F-Q_M is



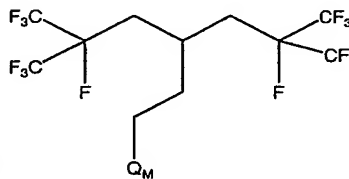
19. The composition of claim 9 wherein the R_F-Q_M is



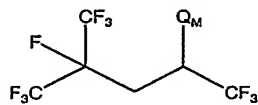
20. The composition of claim 9 wherein the R_F-Q_M is



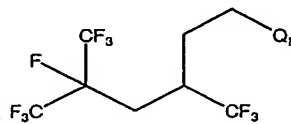
21. The composition of claim 9 wherein the R_F-Q_M is



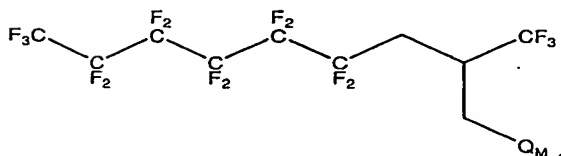
22. The composition of claim 9 wherein the R_F-Q_M is



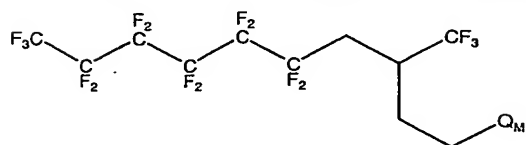
- 10 23. The composition of claim 9 wherein the R_F-Q_M is



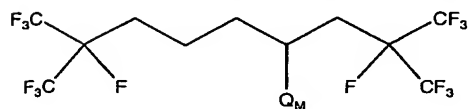
24. The composition of claim 9 wherein the R_F-Q_M is



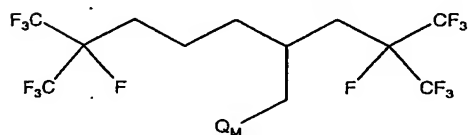
25. The composition of claim 9 wherein the R_F-Q_M is



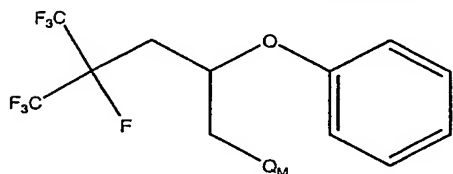
26. The composition of claim 9 wherein the R_F-Q_M is



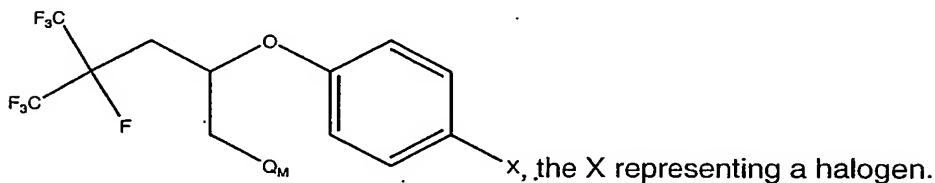
5 27. The composition of claim 9 wherein the R_F-Q_M is



28. The composition of claim 9 wherein the R_F-Q_M is



29. The composition of claim 9 wherein the R_F-Q_M is



10

30. A composition comprising a R_F -monomer unit, wherein R_F comprises a pendant group of the monomer unit, the pendant group comprising at least two $-CF_3$ groups and at least two hydrogens.

15 31. The composition of claim 30 wherein the R_F -monomer unit comprises R_F-Q_{MU} , Q_{MU} comprising a remainder of the monomer unit.

32. The composition of claim 30 wherein the pendant group comprises at least one $-CH_2-$ group.

20 33. The composition of claim 30 wherein the pendant group comprises at least one cyclic group.

34. The composition of claim 30 wherein the pendant group comprises at least one aromatic group.

35. The composition of claim 30 wherein the pendant group comprises at least one $(\text{CF}_3)_2\text{CF}$ - group.

5 36. The composition of claim 30 wherein the pendant group comprises at least three $-\text{CF}_3$ groups.

37. The composition of claim 30 wherein the pendant group comprises at least two $(\text{CF}_3)_2\text{CF}$ - groups.

10 38. The composition of claim 30 wherein the pendant group comprises at least four carbons and one of the four carbons comprises a $-\text{CH}_2-$ group.

39. The composition of claim 30 wherein the composition comprises an acrylic and the $\text{R}_\text{F}\text{-Q}_\text{MU}$ is a monomer unit of the acrylic.

40. The composition of claim 30 wherein the composition comprises a resin and the $\text{R}_\text{F}\text{-Q}_\text{MU}$ is a monomer unit of the resin.

15 41. The composition of claim 40 wherein the resin comprises a polyurethane resin.

42. The composition of claim 30 wherein the composition comprises a polymer and the $\text{R}_\text{F}\text{-Q}_\text{MU}$ is a monomer unit of the polymer.

43. The composition of claim 42 wherein the polymer comprises a copolymer.

20 44. The composition of claim 42 wherein the polymer comprises a block polymer.

45. A composition comprising a R_F -metal complex, R_F comprising at least two $-\text{CF}_3$ groups.

46. The composition of claim 45 wherein the R_F -metal complex comprises $\text{R}_\text{F}\text{-Q}_\text{MC}$, Q_MC comprising a remainder of the metal complex.

25 47. The composition of claim 46 wherein R_F comprises at least one $-\text{CH}_2-$ group.

48. The composition of claim 46 wherein R_F comprises at least one cyclic group.

49. The composition of claim 46 wherein the cyclic group comprises an aromatic group.

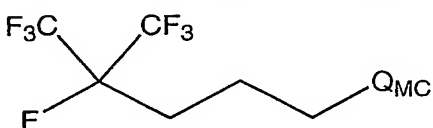
50. The composition of claim 46 wherein R_F comprises at least one $(CF_3)_2CF$ -group.

51. The composition of claim 46 wherein R_F comprises at least three $-CF_3$ groups.

52. The composition of claim 46 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.

53. The composition of claim 46 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.

54. The composition of claim 45 wherein R_F-Q_{MC} is



55. The composition of claim 45 wherein the metal complex comprises a metal and a ligand, the ligand comprising R_F-Q_g , wherein:

R_F comprises at least two $-CF_3$ groups and at least two hydrogens; and

Q_g is coordinated with the metal of the complex.

56. A composition comprising a R_F -phosphate ester, R_F comprising at least two $-CF_3$ groups.

57. The composition of claim 56 wherein R_F further comprises at least one $-CH_2-$ group.

58. The composition of claim 56 wherein R_F further comprises at least one cyclic group.

59. The composition of claim 58 wherein the cyclic group comprises an aromatic group.

60. The composition of claim 56 wherein R_F comprises at least one $(CF_3)_2CF$ -group.

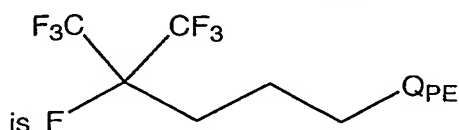
61. The composition of claim 56 wherein R_F comprises at least three $-CF_3$ groups.

62. The composition of claim 56 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.

63. The composition of claim 56 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.

64. The composition of claim 56 wherein the R_F -phosphate ester comprises R_F-Q_{PE} , Q_{PE} comprising a remainder of the phosphate ester.

65. The composition of claim 64 wherein R_F-Q_{PE}



5 66. A composition comprising a R_F -glycol, R_F comprising at least two $-CF_3$ groups.

67. The composition of claim 66 wherein R_F further comprises at least one $-CH_2-$ group.

10 68. The composition of claim 66 wherein R_F further comprises at least one cyclic group.

69. The composition of claim 68 wherein the cyclic group comprises an aromatic group.

70. The composition of claim 66 wherein R_F comprises at least one $(CF_3)_2CF-$ group.

15 71. The composition of claim 66 wherein R_F comprises at least three $-CF_3$ groups.

72. The composition of claim 66 wherein R_F comprises at least two $(CF_3)_2CF-$ groups.

73. The composition of claim 66 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.

20 74. The composition of claim 66 wherein the R_F -glycol comprises R_F-Q_H , Q_H comprising a remainder of the glycol.



76. A composition comprising a R_F -urethane, R_F comprising at least two $-CF_3$ groups.

25 77. The composition of claim 76 wherein R_F further comprises at least one cyclic group.

78. The composition of claim 77 wherein the cyclic group comprises an aromatic group.

79. The composition of claim 76 wherein R_F comprises at least one $(CF_3)_2CF$ -group.

5 80. The composition of claim 76 wherein R_F comprises at least three $-CF_3$ groups.

81. The composition of claim 76 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.

82. The composition of claim 76 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.

10 83. The composition of claim 76 wherein the R_F -urethane comprises R_F-Q_U , Q_U comprising a remainder of the urethane.



15 85. A composition comprising a substrate having a R_F -composition thereover, R_F comprising at least two $-CF_3$ groups.

86. The composition of claim 85 wherein R_F further comprises at least one cyclic group.

87. The composition of claim 86 wherein the cyclic group comprises an aromatic group.

20 88. The composition of claim 85 wherein R_F comprises at least one $(CF_3)_2CF$ -group.

89. The composition of claim 85 wherein R_F comprises at least three $-CF_3$ groups.

90. The composition of claim 85 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.

25 91. The composition of claim 85 wherein R_F comprises at least four carbons and one of the four carbons comprises a $-CH_2-$ group.

92. The composition of claim 85 wherein the R_F -composition comprises a R_F -monomer unit.

93. The composition of claim 92 wherein the R_F -monomer unit comprises R_F-Q_{MU} , Q_{MU} comprising a remainder of the monomer unit.

5 94. The composition of claim 93 wherein the R_F -composition comprises an acrylic and the R_F-Q_{MU} is a monomer unit of the acrylic.

95. The composition of claim 93 wherein the R_F -composition comprises a resin and the R_F-Q_{MU} is a monomer unit of the resin.

10 96. The composition of claim 95 wherein the resin comprises a polyurethane resin.

97. The composition of claim 93 wherein the R_F -composition comprises a polymer and the R_F-Q_{MU} is a monomer unit of the polymer.

98. The composition of claim 97 wherein the polymer comprises a copolymer.

99. The composition of claim 97 wherein the polymer comprises a block polymer.

15 100. The composition of claim 85 wherein the R_F -composition comprises a R_F -metal complex.

101. The composition of claim 92 wherein the R_F -metal complex comprises R_F-Q_{MC} , Q_{MC} comprising a remainder of the metal complex.

20 102. The composition of claim 85 wherein the R_F -composition comprises a R_F -phosphate ester.

103. The composition of claim 92 wherein the R_F -phosphate ester comprises R_F-Q_{PE} , Q_{PE} comprising a remainder of the phosphate ester.

104. The composition of claim 85 wherein the R_F -composition comprises a R_F -glycol.

25 105. The composition of claim 92 wherein the R_F -glycol comprises R_F-Q_H , Q_H comprising a remainder of the glycol.

106. The composition of claim 85 wherein the R_F -composition comprises a R_F -urethane.

107. The composition of claim 92 wherein the R_F-urethane comprises R_F-Q_U, Q_U comprising a remainder of the urethane.

108. The composition of claim 85 wherein the R_F-composition is chemically bonded to the substrate.

5 109. The composition of claim 85 wherein the substrate comprises glass.

110. A production process comprising:

providing a R_F-monomer comprising R_F-Q_M, wherein:

R_F comprises at least two -CF₃ groups and at least two hydrogens; and

Q_M comprises a remainder of the R_F-monomer; and

10 combining the R_F-monomer with at least another monomer to form an oligomer.

111. The process of claim 110 wherein R_F comprises at least one -CH₂- group.

112. The process of claim 110 wherein R_F comprises at least one cyclic group.

15 113. The process of claim 112 wherein the cyclic group comprises an aromatic group.

114. The process of claim 110 wherein R_F comprises at least one (CF₃)₂CF- group.

115. The process of claim 110 wherein R_F comprises at least three -CF₃ groups.

116. The process of claim 110 wherein R_F comprises at least two (CF₃)₂CF- groups.

20 117. The process of claim 110 wherein R_F comprises at least four carbons and one of the four carbons comprises a -CH₂- group.

118. The process of claim 110 wherein Q_M comprises an acrylate.

119. The process of claim 110 wherein Q_M comprises an olefin.

25 120. The process of claim 110 wherein the other monomer is the same as the R_F-monomer and the oligomer comprises a homopolymer.

121. The process of claim 110 wherein the other monomer is not the same as the R_F-monomer and the oligomer comprises a copolymer.